IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appl. No.:	10/070,338	Confirmation No.:	**2450**
Applicant:	Karam et al.	TC/A.U.	2444
Filed:	12/12/2002	Examiner:	Bengzon
Docket No.:	4366DMG-11-PUS		
For:	METHOD AND APPARATUS FOR CHARACTERIZING THE QUALITY OF A NETWORK PATH		

COMMENTS ON STATEMENT OF REASONS FOR ALLOWANCE

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Applicant submits this Comments on Statement of Reasons for Allowance to address further the Notice of Allowability ("Notice") having a mailing date of September 28, 2009.

In the Notice, the Examiner's stated reasons for allowance were that:

The provision for a method for characterizing a quality of a network path, including a first segment and a second segment, the method comprising:

> modeling, by at least one network device, negative linear exponential equations for deriving first and second metrics,
>
> wherein modeling one of the negative linear exponential equations comprises determining a first parameter of the negative exponential equation corresponding to underestimating a quality characterization, determining a second parameter of the negative exponential equation corresponding to overestimating the corresponding quality characterization, and determining a third parameter from an average of the first and second parameters;
>
> wherein the first and second metrics are at least in part quality characterizations of a same plurality of one or more network applications;
>
> accessing the first metric and the second metric,

the quality characterization characterizes a quality of the same plurality of one or more network applications running at one or more segment end-points,

the first metric and the second metric are at least partly a function of a same plurality of one or more elementary network parameters,

the plurality of one or more network parameters include one or more of delay, jitter, loss, currently available bandwidth, and intrinsic bandwidth,

the first metric is at least partly the function of the same plurality of network parameters of the first segment,

the one or more segment end points include one or more endpoints of the first segment,

the second metric is at least partly the function of the same plurality of network parameters of the second segment, and

the one or more segment end points include one or more endpoints of the second segment; and

adding the first metric and the second metric to generate a third metric,

wherein the third metric is at least partly the function of the same plurality of one or more network parameters of the network path,

the one or more segment end points include one or more endpoints of the network path, and

the third metric is a quality characterization of the same plurality of one or more applications

wherein all the features previously described are combined in one singular embodiment, is not fairly taught or suggested by the prior art of record.

The Examiner interprets the claimed methods as pertaining to statutory subject matter such as a process being performed by a machine. While the claimed network device is not explicitly described in the Applicant Specifications as hardware the Examiner cannot determine any portion of the Applicant Specifications that would suggest that the network device is embodied entirely of software components or by an algorithm. Thus the meaning of the network device is interpreted according to what is well-known in the networking art, that is of a machine connected to a network.

The Examiner finds particular novelty in the methods for characterizing the quality of a network path as described in the Applicant Specification (Page 11 Lines 10-20) wherein modeling one of the negative linear exponential equations comprises determining a first parameter of the negative exponential equation corresponding to underestimating a quality characterization (Page 12 Lines 10-20). Furthermore the method also comprises determining a third parameter from an average of the first and second parameters (Page 12 Lines 20-25, Page 46 Lines 20-30).

Furthermore the negative linear equations include a first and second metrics such that the first metric and the second metric are at least partly a function of a same plurality of one or more elementary network parameters, the plurality of one or more network parameters including one or more of delay, jitter, loss, currently available bandwidth, and intrinsic bandwidth. (Page 5 Lines 20-30). Furthermore the method includes adding the first metric and the second metric to generate a third metric. (Page 8 Lines 20-30).

Juttner disclosed determining a path in a communications system that minimizes a cost function and satisfies an additional constraint, these constraints referred to as QoS requirements, thereby providing a solution to the QoS routing problem. Juttner disclosed wherein cumulative parameters can be either additive (e.g., delay, jitter and administrative weight) or multiplicative (e.g., loss probability).

However Juttner does not disclose wherein modeling one of the negative linear exponential equations comprises determining a first parameter of the negative exponential equation corresponding to underestimating a quality characterization. Furthermore Juttner does not disclose determining a second parameter of the negative exponential equation corresponding to overestimating the corresponding quality characterization. Furthermore Juttner does not disclose determining a third parameter from an average of the first and second parameters.

Hultgren disclosed dynamic optimization of quality assured connections between end nodes when quality service is requested by a node.

However Hultgren does not disclose wherein modeling one of the negative linear exponential equations comprises determining a first parameter of the negative exponential equation corresponding to underestimating a quality characterization. Furthermore Hultgren does not disclose determining a second parameter of the negative exponential equation corresponding to overestimating the corresponding quality characterization. Furthermore Hultgren does not disclose determining a third parameter from an average of the first and second parameters.

Saleh disclosed a method for discovering preferable routes between two nodes in a network. Saleh successively determines the most desirable path to certain nodes in the network, recalculating the path as nodes increasingly farther from the node calculating the path (the root node) are considered, filling the entries in a path table as the method proceeds. This process continues until an end condition is reached, such as when all nodes in the network are proceeded, the second of the two end

nodes (the destination node) is reached, a maximum number of hops has been reached, or some other criteria is met.

However Saleh does not disclose wherein modeling one of the negative linear exponential equations comprises determining a first parameter of the negative exponential equation correspondent to underestimating a quality characterization. Furthermore Saleh does not disclose determining a second parameter of the negative exponential equation corresponding to overestimating the corresponding quality characterization. Furthermore Saleh does not disclose determining a third parameter from an average of the first and second parameters.

Hardy disclosed determining what combinations of packet loss rate and packet delay are tolerable where a packet switched telephony service is desired to be perceived to be substantially equivalent to a traditional toll-quality non-packet-switched telephone service. Empirically derived models are used to relate user perception to objectively measurable characteristics, such as packet loss rate.

However Hardy does not disclose wherein modeling one of the negative linear exponential equations comprises determining a first parameter of the negative exponential equation corresponding to underestimating the corresponding quality characterization. Furthermore Hardy does not disclose determining a third parameter from an average of the first and second parameters.

Based on the Notice, the patentability of all other independent and dependent claims is assumed to be based upon the elements as set forth in such claims and that such claims meet all criteria for patentability under §101, §102, §103 and §112.

As is clear from MPEP 1302.14,

"The statement [of reasons for allowance] is not intended to necessarily state all the reasons for allowance or all the details why claims are allowed and should not be written to specifically or impliedly state that all the reasons for allowance are set forth."

While the above-stated may be a stated reason for allowing some independent claims, Applicant submits that some independent claims have a different reason for allowance and that some independent claims have other reasons for allowance.

Specifically, the prior art fails to teach the following features of Claims 1, 24 and 54:

1. A method for characterizing a quality of a network path, including a first segment and a second segment, the method comprising:

modeling, by at least one network device, negative linear exponential equations for deriving first and second metrics, wherein modeling one of the negative linear exponential equations comprises determining a first parameter of the negative exponential equation corresponding to underestimating a quality characterization, determining a second parameter of the negative exponential equation corresponding to overestimating the corresponding quality characterization, and determining a third parameter from an average of the first and second parameters; wherein the first and second metrics are at least in part quality characterizations of a same plurality of one or more network applications;

accessing the first metric and the second metric,

the quality characterization characterizes a quality of the same plurality of one or more network applications running at one or more segment end-points,

the first metric and the second metric are at least partly a function of a same plurality of one or more elementary network parameters,

the plurality of one or more network parameters include one or more of delay, jitter, loss, currently available bandwidth, and intrinsic bandwidth,

the first metric is at least partly the function of the same plurality of network parameters of the first segment,

the one or more segment end points include one or more endpoints of the first segment,

the second metric is at least partly the function of the same plurality of network parameters of the second segment, and

the one or more segment end points include one or more endpoints of the second segment; and

adding the first metric and the second metric to generate a third metric,

wherein the third metric is at least partly the function of the same plurality of one or more network parameters of the network path,

the one or more segment end points include one or more endpoints of the network path, and

the third metric is a quality characterization of the same plurality of one or more applications.

24. A network system, comprising:

a plurality of one or more network devices configured, such that if the network device is coupled to at least a network path including a first segment and a second segment, the plurality of one or more network devices performing:

modeling, by one or more of the plurality of one or more network device, negative linear exponential equations for deriving first and second metrics,

wherein modeling one of the negative linear exponential equations comprises determining a first parameter of the negative exponential equation corresponding to underestimating a quality characterization, determining a second parameter of the negative exponential equation corresponding to overestimating the corresponding quality characterization, and determining a third parameter from an average of the first and second parameters;

wherein the first and second metrics are at least in part quality characterizations of a same plurality of one or more network applications;

accessing the first metric and the second metric,

the quality characterization characterizes a quality of the same plurality of one or more network applications running at one or more segment end-points,

the first metric and the second metric are at least partly a function of a same plurality of one or more elementary network parameters,

the plurality of one or more network parameters include one or more of delay, jitter, loss, currently available bandwidth, and intrinsic bandwidth,

the first metric is at least partly the function of the same plurality of network parameters of the first segment,

the one or more segment end points include one or more endpoints of the first segment,

the second metric is at least partly the function of the same plurality of network parameters of the second segment, and

the one or more segment end points include one or more endpoints of the second segment; and

adding the first metric and the second metric to generate a third metric,

wherein the third metric is at least partly the function of the same plurality of one or more elementary network parameters of the network path,

the one or more segment end points include one or more endpoints of the network path, and

the third metric is a quality characterization of the same plurality of one or more applications.

54. A method of characterizing a quality of a network path, including a first segment and a second segment, the method comprising:

using products of negative exponential functions for deriving first and second metrics, wherein deriving one of the negative linear exponential equations comprises determining, by a network device, a first parameter of the negative exponential equation corresponding to underestimating a quality characterization, determining, by the network device, a second parameter of the negative exponential equation corresponding to overestimating the corresponding quality characterization, and determining, b the network device, a third parameter from an average of the first and second parameters;

wherein the first and second metrics are at least in part quality characterizations of a same plurality of one or more network applications;

accessing the first metric and the second metric,

the quality characterization characterizes a quality of the same plurality of one or more network applications running at one or more segment end-points,

the first metric and the second metric are at least partly a function of a same plurality of one or more elementary network parameters whose individual performance is modeled using a negative exponential function,

the plurality of one or more network parameters include one or more of delay, jitter, loss, currently available bandwidth, and intrinsic bandwidth,

the first metric is at least partly the function of the same plurality of network parameters of the first segment,

the one or more segment end points include one or more endpoints of the first segment,

the second metric is at least partly the function of the same plurality of network parameters of the second segment, and

the one or more segment end points include one or more endpoints of the second segment; and

adding the first metric and the second metric to generate a third metric,

wherein the third metric is at least partly the function of the same plurality of one or more network parameters of the network path,

the one or more segment end points include one or more endpoints of the network path, and

the third metric is a quality characterization of the same plurality of one or more applications.

Although the Applicant believes that no fees are due for filing this Comments on Statement of Reasons for Allowance, please charge any fees deemed necessary to Deposit Account No. 19-1970.

Respectfully submitted,

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Date: Oct 22, 2009

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